TEMPO AND METER IN SELECTED FRENCH AND ITALIAN ORGAN WORKS (1600-1670)

A Doctoral Essay

Presented to

The Faculty of the Moores School

of Music

University of Houston

In Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Musical Arts

By

Timothy J. Duhr

May, 2016

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ABSTRACT

This essay examines shifts of meter in organ music from the first part of the seventeenth century in France and Italy, and how tempo relates to these shifts. It focuses on texts and music written by Jehan Titelouze (1563-1633), Marin Mersenne (1588-1648), François Roberday (1624-1680), Louis Couperin (1626-1661), Guillaume-Gabriel Nivers (1632-1714), Girolamo Diruta (1554-1610), Giovanni Gabrieli (1557-1612), Adriano Banchieri (1568-1634), and Girolamo Frescobaldi (1583-1643). The study reveals three distinct interpretive solutions to shifts in meter that were in practice at the time. The first is strictly "rational" and involves exact proportions, either based on a steady *tactus*, as had been the case in the Renaissance, or on faster note values. The second uses theoretically exact proportions, but involves slight modifications of tempi in actual performance, especially when moving from 𝐂 to 𝄵. The last is "non-rational" and is based on tempi chosen by the performer or indicated with words by the composer, such as Adagio, Allegro, and Presto. The "non-rational" practice tended to be favored in Italy, while the other two were preferred in France. The study leads modern organists to interpretive solutions that can help them play music from this transitional period in a convincing and informed manner.

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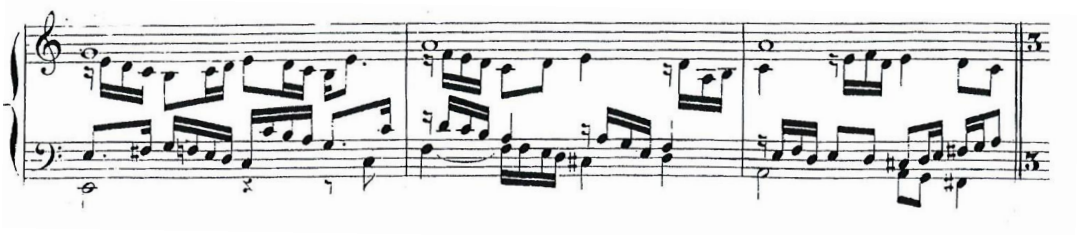
Introduction to the Study

Music notation in the early seventeenth century was in a state of transition: some carry-over practices from the mensural notation of the Renaissance were still in use while at the same time more modern practices began to appear. George Houle, who wrote the seminal, modern-era work on the topic concerning this period, *Meter in Music: 1600 to 1800*, writes the following about seventeenth-century notation: "The symbols of notation appear tantalizingly similar to modern ones, but their meanings are not: a fact that can lead to bewilderment and misinterpretation."[1] It would be beneficial for modern organists performing this transitional music to have a better understanding of early notation, which would in turn shed light on the intentions of the composers. Numerous questions related to meter and tempo arise when playing this music. For example, what tempo, if any, does a specific meter imply? How does one interpret a shift from duple to triple meter, or vice-versa? And how does one interpret shifts between two different types of duple meters?

An illustration of one of these problems may be seen in Example 1.

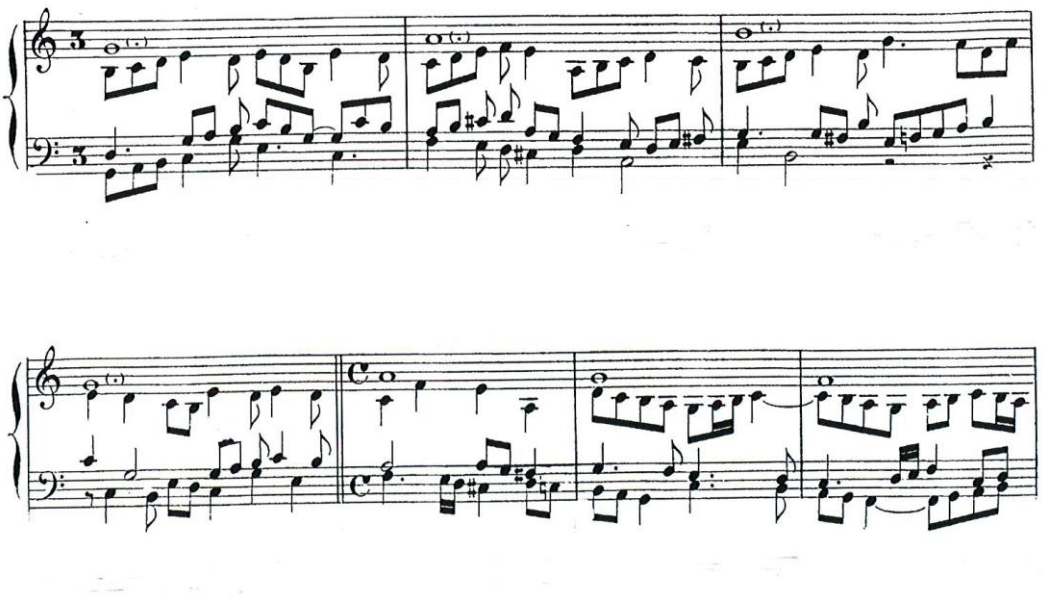
Example 1. Third verset of "Pange lingua," from Jehan Titelouze, *Hymnes de l'Église* (*Hymns of the Church*, 1623), mm. 59-68.[2] **[𝐂]**.[3]



[1]George Houle, *Meter in Music, 1600-1800* (Bloomington: Indiana University Press, 1987), vii.

[2]Jehan Titelouze, *Organ Works* (Paris: A. Durand & Fils, 1897; reprint, Boca Raton: Edwin F. Kalmus & Co., Inc., 1998), 28-9. Although modern editions are used for this study, all editorial registration, tempo, and dynamic markings were removed in the examples.

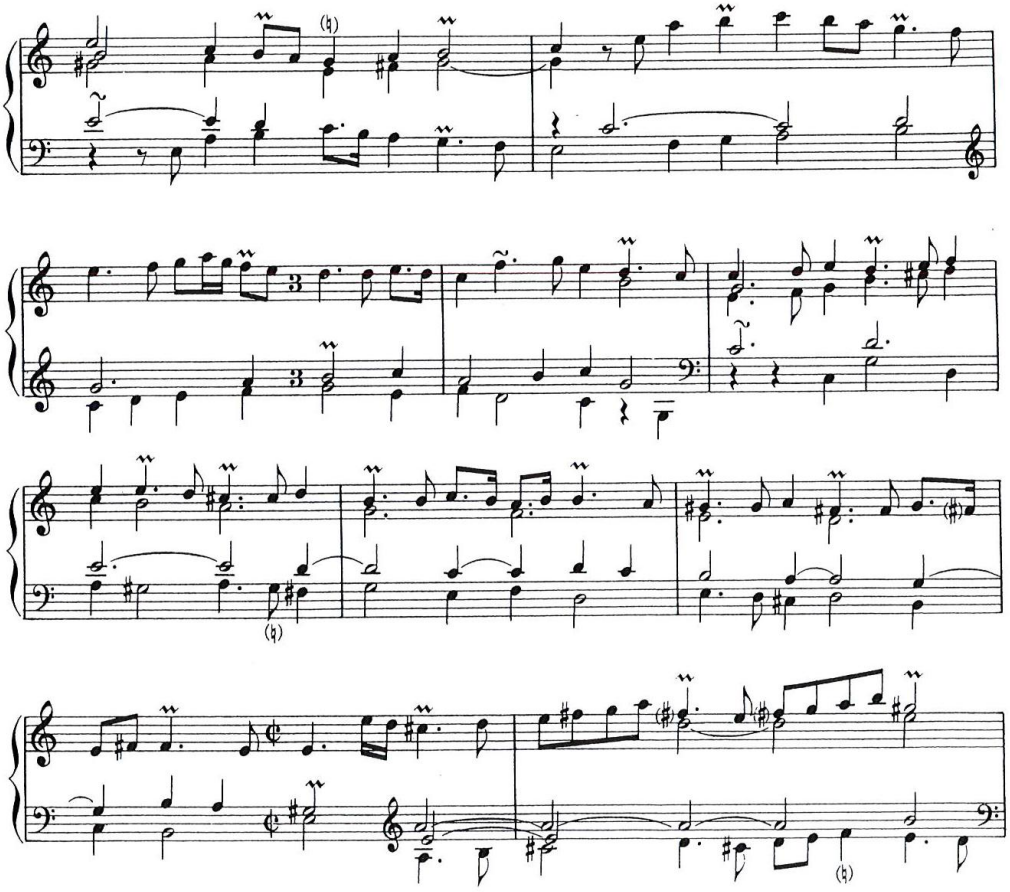
[3]Many of the musical examples in this study begin midway through the compositions. If the time signature is not indicated on the score at the beginning of the example, it will be indicated in brackets at the end of the caption.



The example begins at the end of a section marked with the meter 𝐂. In line two, this progresses to a section marked "3." Finally, we return to 𝐂 in the third line of the example. How does the organist interpret these shifts? Does the length of each measure, that is to say the *tactus* in this time period, retain the same duration throughout, or do the eighth and quarter notes remain the same, resulting in measures of two different durations? In other words, does each note of the *cantus firmus* (the long notes in the soprano) need to be of identical duration throughout? Later in this study different possibilities for interpretation will be discussed.

Another illustration of the problem is shown in Example 2, drawn from Nivers's *First Organ Book*, which appeared in France four decades after Titelouze's publication.

Example 2. "Grand jeu," from Guillaume-Gabriel Nivers, *Premier livre d'orgue* (*First Organ Book*, 1665), mm. 5-14.[4] **[𝅵]**.

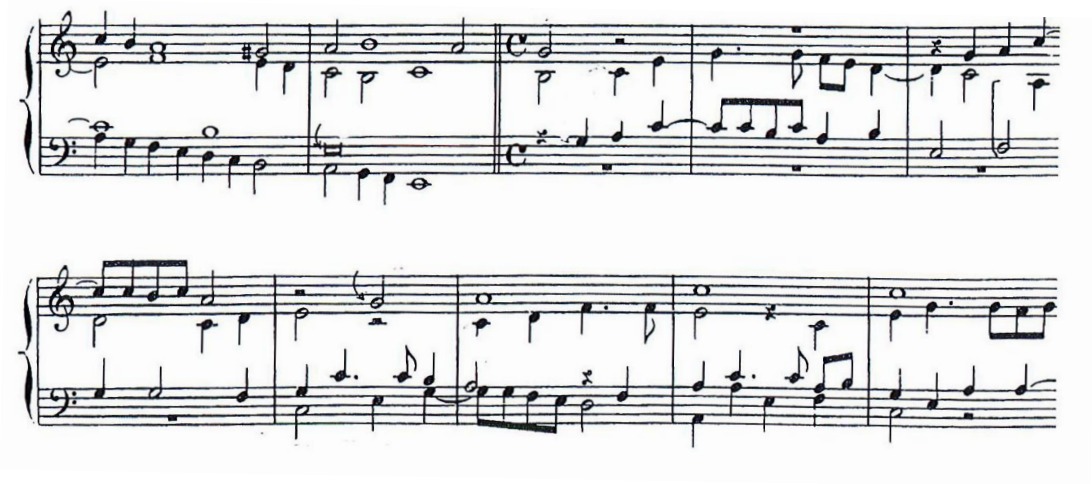


The first section uses the meter 𝅵. This shifts to a section marked "3" in the middle of the first measure of the second line. Finally the meter returns to 𝅵 in the last line of the example. Does a whole note in the first section equal a dotted half in the second? Or do the shorter note value (e.g., eighths and quarters) maintain the same duration throughout?

The problem is not limited to shifts between duple and triple meters. Like the first example, the following is also from Titelouze's *Hymns of the Church*.

[4]Guillaume-Gabriel Nivers, *Premier livre d'orgue*, ed. Norbert Dufourcq (Paris: Bornemann, 1963), 28.

Example 3. Third verset of "A solis ortus," from Jehan Titelouze, *Hymns of the Church* (1623), mm. 11-20.[5] **[𝄵]**.



In the first line of the example, the opening section marked 𝄵 shifts to a section marked 𝄴 by the composer. Does the whole note of the first section equal the half note of the second? If so, why did Titelouze not double the note values in the second section and leave the meter unchanged?

This study will consider these problems as they occur in organ music by seven composers from France and Italy during the span from 1600 to 1670: Jehan Titelouze (1563-1633), François Roberday (1624-1680), Louis Couperin (1626-1661), Guillaume-Gabriel Nivers (1632-1714), Giovanni Gabrieli (1557-1612), Adriano Banchieri (1568-1634), and Girolamo Frescobaldi (1583-1643). Two of these composers were chosen because they were arguably the most important for the organ in their respective countries at this time: Titelouze and Frescobaldi. Three of these—Nivers, Banchieri, and Gabrieli—were chosen because they wrote about matters of meter and tempo, which is obviously helpful in understanding their own music and other music composed during the span this study encompasses. Pieces by the remaining two composers—Roberday and

[5]Titelouze, 52.

Couperin—are included because their organ works contain representative meter and tempo issues common to the music from this period. The decision to include the specific pieces in this study and not others is didactic. Many of the interpretive issues that organists encounter when playing music from this period can be found in these pieces.

In order to shed light on these issues, both primary written sources and internal evidence in the music will be considered. The primary sources consist of prefatory material to collections of organ music and theoretical treatises. Some of these writings were produced by the composers themselves, and are thus obviously relevant to their own compositions. Among these sources is one written by Titelouze. His compositions were known by composers of the era, and it will become evident in this study that his ideas are indeed applicable to the works of other composers included in this discussion. Other primary sources come from treatises produced by organists, including those by Banchieri and Girolamo Diruta (1554-1610), published early in the seventeenth century. A text by Marin Mersenne, who was not an organist, is also included because it relates to the works of Titelouze. Additionally, internal evidence in the music itself will be considered. This evidence presents itself when one plays the music, experimenting with possible solutions for performance. Certain relationships among tempi and meters might result in one section being rushed and another dreadfully slow; polyphony might be blurred when playing in one tempo but clear in another; and one section might be technically comfortable in one tempo, but next to impossible in another.

When considering both the primary sources and the internal evidence, the solutions to the problems of interpreting meter and tempo fall into three broad categories. The first is “rational” and stems from Renaissance practice, but also includes some new

Baroque possibilities. This involves strictly proportional relationships between measures or shorter note values. Some relationships between meters appear to be theoretically "rational," but can be modified to some degree by the performer. These involve slightly altered relationships between measures or note values. This second category shall be called "modified-rational." The third is "non-rational," and involves relationships between sections that are not governed by exact proportions. These "non-rational" relationships are justified both by written texts from the period and internal evidence in the music. While all three will be applied to the Italian examples, only the first two categories are applicable to the French musical examples in this study, as the French written texts do not discuss the "non-rational" category.

The musical examples discussed in this study will be divided into these three categories beginning with examples that warrant a "rational" or "modified-rational" interpretation, and concluding with those that merit a "non-rational" one. It shall become evident that in some cases single pieces written by the same composer may fall into more than one category. The musical examples included in this study were taken from modern editions, but the accuracy of all meters and note values was verified using facsimiles of the original publications. Terms for note values and meter signatures follow modern American usage; this avoids the complex, inconsistent, and at times ambiguous terminologies of the early seventeenth century. The term Renaissance practice refers to a carry-over tradition from the Renaissance applied to music from this transitional period, in which the *tactus* or measure remains steady. In applying this to the musical examples

in this discussion, the span of one measure regardless of any shift in meter remains the same.[6]

Recent scholarship related to these performance issues includes Anna Maria Busse Berger's book *Mensuration and Proportion Signs: Origins and Evolution*.[7] While her study is comprehensive within her time period and it provides a good understanding of these performance issues during the Renaissance, it does not include any research on the transitional period in question. Albert Seay mentions the performance problems one might encounter in the introduction to *Transcriptions of Chansons for Keyboard*, his edition of Pierre Attaingnant's 1531 publication of organ works.[8] However, his discussion is far from complete and much earlier than the period under investigation here. The standard work on the topic has already been mentioned: Houle's *Meter in Music,* published in 1987. While his work focused on music from the early- to mid-seventeenth century, and the book has been a valuable point of departure for the current study, Houle often raises more questions than he answers. In addition, he did not consider some of the most important primary sources for organists from this period, such as texts by Titelouze, Nivers, Correa de Arauxo, and Matthias Weckmann. Individual studies of the music of composers from the period do touch on our topic. These include Hans Davidsson's work on Weckmann[9] and Jon Holland's research on the music of Correa de Arauxo.[10] But to

[6]This practice is discussed in the following sources: Roger Bowers, "Proportional Notations in Monteverdi's 'Orfeo,'" *Music & Letters* 76, no. 2 (May 1995): 149-167; and Roger Bowers, "Proportional Notation," *Grove Music Online*, ed. Deane Root, accessed April 27, 2016, http://oxfordmusiconline.com.

[7]Anna Maria Busse Berger, *Mensuration and Proportion Signs: Origins and Evolution* (New York: Oxford University Press, 1993).

[8]Albert Seay, *Introduction to Transcriptions of Chansons for Keyboard* (Tübingen: American Institute of Musicology, 1961).

[9]Hans Davidsson, *Matthias Weckmann: The Interpretation of His Organ Music* (Stockholm: Gehrmans Musikförlag, 1991).

[10]Jon Burnett Holland, "Francisco Correa de Arauxo's *Facultad Orgánica*: A Translation and Study of its Theoretical and Pedagogical Aspects" (D.M.A. diss., University of Oregon, 1985).

date, no scholar has attempted to resolve the many performance issues by comparing writings and organ music from France and Italy. Although this study examines musical examples drawn only from these two countries, occasional references are also made to relevant Spanish and German primary sources.

Meter and Tempo in France

Jehan Titelouze was the first significant composer of organ music in France. Though born and raised in Flanders, he spent most of his career as cathedral organist in Rouen. His publications include settings of twelve Gregorian hymns, published in 1623, and settings of the Magnificat in all eight tones, published in 1626. Each hymn setting contains three or four versets, either with the Gregorian melody as a *cantus* firmus or employed in fugal writing. The changes in meter in the organ works of Titelouze occur in the settings of the Magnificat and in his hymns, which he indicated were for advanced performers.

Before looking at the music of Titelouze, it is important to consider a text by the French music theorist, philosopher, and mathematician, Marin Mersenne, who was in correspondence with the leading figures of the time in many disciplines, including Titelouze. Mersenne's *Harmonie universelle* (1636) contains detailed information on tempo and meter. In explaining how one should beat time, he uses the Spanish term *compas* [*tactus*]. He defined this, as many of his contemporaries did, including the Spanish organist, Correa de Arauxo. Mersenne writes: "The *compas* or the measure … is nothing other than the lowering and lifting of the hand, which signifies the time that must

be given to each measure."[11] He continues by indicating that the whole note usually lasts one raising plus one lowering of the hand; the half note takes half as much time. Regarding tempo, Mersenne writes that one can find the duration of a measure by using one's pulse. But he notes that musicians do not usually follow the tempo of the normal heart rate "since the beating of the heart is faster than that of the hand." He notes that using the pulse for one's tempo is possible only if a conductor pushes the tempo, or if he chooses a slow heart rate. Mersenne continues by writing that the beat could be once per second, but he is most likely referring to choral singing or music performed by viol consorts, as he mentions both of these ensembles in the same proposition. Therefore this is not proof of a half-note at roughly 60 sixty beats per minute as the default tempo for organ works. Mersenne adds that many tempo changes can exist in a single composition, especially when dictated by the meaning of the text or the passions. Even though Mersenne is not referring specifically to organ music, it can be deduced that exact proportions between meters were not the only interpretive solutions at the time. Mersenne's comments on the influence of text on tempo may even be applicable to the hymns of Titelouze, which are of course linked to sacred texts. Concerning triple time, Mersenne offers the following advice:

> The lowering or beating is double the raising [of the hand] in ternary measures. There one sings two half notes when lowering and only one when raising [the hand]. … One puts in the number 3 at the beginning of the staff when one sings in a ternary measure, either all alone or with a 2 below it.[12]

[11]Marin Mersenne, *Harmonie universelle*, vol. 1, with a forward by François Lesure (Paris: Editions du centre national de la recherche scientifique, 1975), 131-3. Translation by Robert Bates.

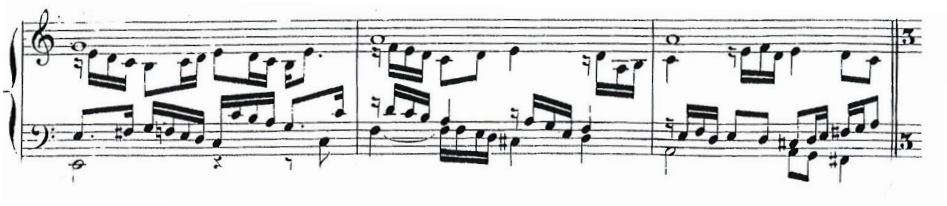
[12]Marin Mersenne, *Harmonie universelle*, vol. 3, with a forward by François Lesure (Paris: Editions du centre national de la recherche scientifique, 1975), 205-6. Translation by Robert Bates.

Mersenne's comment that triple time may be notated with a 2 below 3 might refer to a *sesquialtera* (or 3 to 2) proportion between duple and triple meters, as in Renaissance practice. Titelouze uses only the number three to signify triple meter, but one might also consider the *sesquialtera* relationship as a possible solution to shifts between duple and triple in his works.

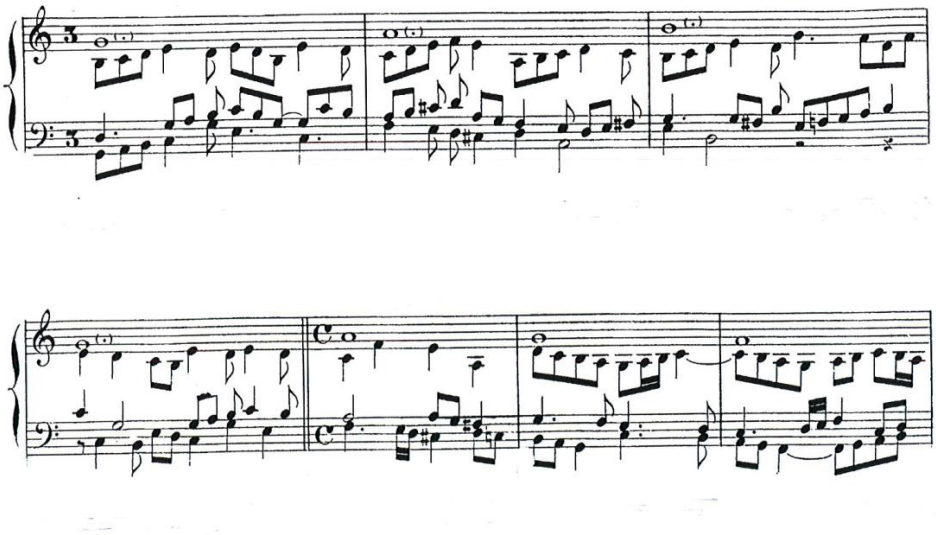
Before examining musical examples by Titelouze, a summary of findings from Mersenne is necessary: the normal speed of the *tactus* can be found using a resting heart rate (although music often flows at a somewhat slower pace), frequent changes of tempo are required in some pieces, especially those based on texts, and the *sesquialtera* proportion is a possible solution for interpreting shifts between duple and triple meters. It is also pertinent to mention that Mersenne indicated that there was much confusion in the understanding of meters at his time; he even recommended simplifying notational practices because of the problem.[13]

Example 4 (already mentioned at the beginning of this discussion) is the third verset of Titelouze's setting of the Eucharistic adoration hymn "Pange lingua."

Example 4. Third verset of "Pange lingua," from Jehan Titelouze, *Hymns of the Church* (1623), mm. 59-68.[14] **[C]**.



[13]Mersenne, 206.
[14]Titelouze, 30-31.

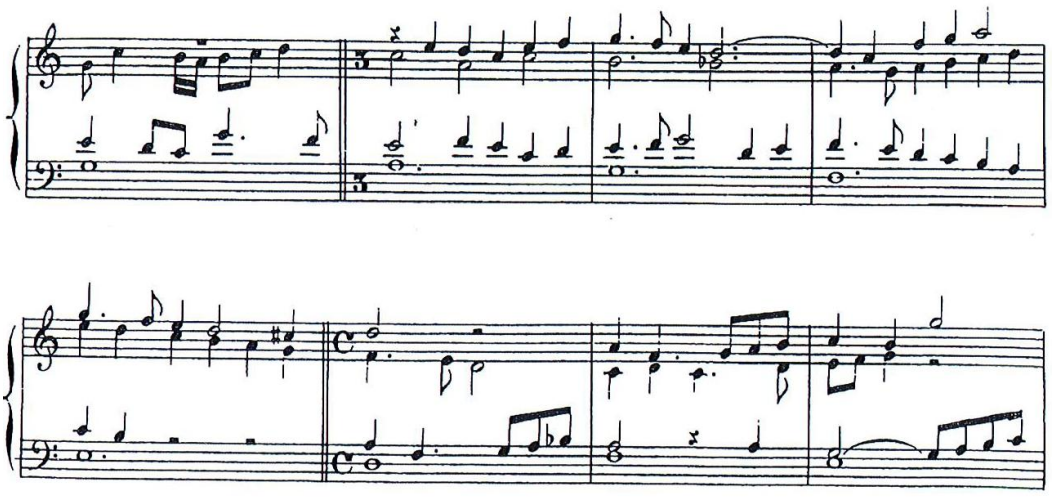


The initial meter is marked 𝐂; this is replaced with the meter "3" for only four measures, beginning in the second line of the example. After this, we return to the meter 𝐂. Let us consider two options, both "rational." For the first, the duration of the *cantus* notes in the soprano is maintained throughout. In other words, each measure has the same duration. This stems from Renaissance practice where the *tactus* remains steady. Following this option, one quarter in 𝐂 equals one dotted quarter in "3." If one plays with the half-note at 60, as mentioned by Mersenne, the entire passage seems rushed. A logical solution would be to perform this passage at his slower tempo, perhaps with the half note at around 50. For the second option, the durations of the shorter note values are maintained; here the measures have different lengths. This is a practice later recommended by Nivers, as we will see.[15] Here, the eighth notes have the same duration in both meters, but the *cantus* is longer in the section marked "3" than in the sections marked 𝐂.

Example 5 is the first verset of "Ut queant laxis," a hymn in honor of St. John the Baptist.

[15]Nivers, *Premier Livre d'Orgue*, ii-iii.

Example 5. First verset of "Ut queant laxis," from Jehan Titelouze, *Hymns of the Church* (1623), mm. 33-38.[16] **[𝄵]**.



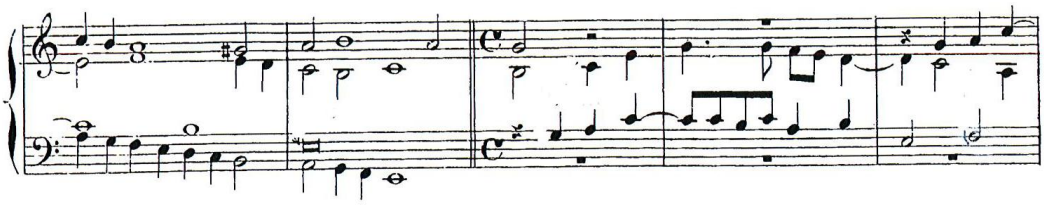
Here is another shift in meter from 𝄵 to "3;" again, the meter "3" spans only four measures. Since this work is based on a *cantus firmus*, the logical solution is again to maintain one duration for the notes of the *cantus* throughout. The *cantus* is in the bass voice. But after experimentation, this writer feels that the counterpoint in the triple section is too static with this solution. A different possibility is to have the eighth note of the first section equal the quarter of the second, as suggested later by Nivers.[17] This is a better solution: the speed of motives in the upper three voices, which are derived from the *cantus*, is identical in both sections. This solution is "rational," but not because the *tactus* or measure is steady. Rather the solution is more "modern," following the advice of Nivers, which will soon be presented.[18]

Example 6 includes two sections drawn from the third verset of Titelouze's setting of the office hymn "A solis ortus."

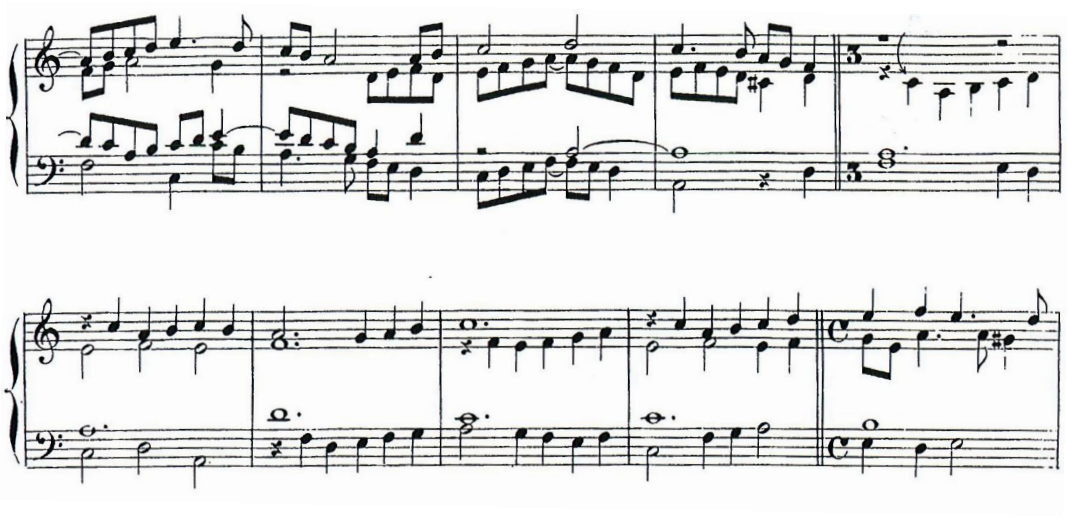
[16]Titelouze, 31.
[17]Nivers, *Premier Livre d'Orgue*, ii-iii.
[18]Nivers, *Premier Livre d'Orgue*, ii-iii.

Example 6. Third verset of "A solis ortus," from Jehan Titelouze, *Hymns of the Church* (1623).[19]

(a) mm. 11-15. **[𝄵]**.



(b) mm. 32-4. **[𝄴]**.



The composer shifts meters three times, in this order: 𝄵 to 𝄴, then to "3," and finally back to 𝄴. Titelouze discusses the first shift in the introduction to his book of hymns, where he states the following:

> The meter and ornaments are applicable to both voices and instruments, with the meter regulating the tempo and the ornaments animating the melodic lines. As for meter, I have used the half circle without a bar to signify a slowing of the beat and meter by about half, which is also a way to play the most difficult things easily.[20]

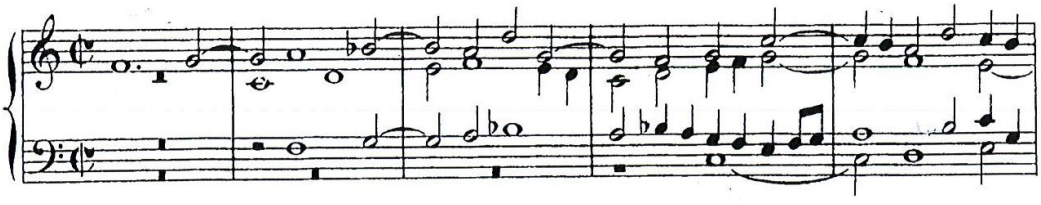
[19]Titelouze, 52-3.
[20]Titelouze, 5. Translation by Robert Bates.

Clearly, for Titelouze, the meter regulates the tempo. When the meter 𝄵 is followed by **C**, the tempo slows by about half. In example 6a, the half note of the first two measures is approximately the same duration as the quarter note of the following measures. It is important to note that Titelouze does not say that the relationship needs to be exact, so a slight modification of the two-to-one ratio is possible in performance. This corresponds to our "modified-rational" category. Consider two interpretive solutions: the first is "rational" (a two-to-one proportion), and the second is "modified-rational," in which the new meter is performed slightly faster. In example 6b, the shift from **C** to "3" could be interpreted with each measure lasting the same amount of time. But as with *Ut queant laxis*, the material in meter "3" is too slow. A solution is for the eighth note of the first section to equal the quarter note of the second. The shift from triple back to **C** at the end of the example reverses the proportion. Again, the solution is "rational," but not involving the steady *tactus* of the Renaissance.

Titelouze also includes meter shifts in his settings of the Magnificat (Example 7).

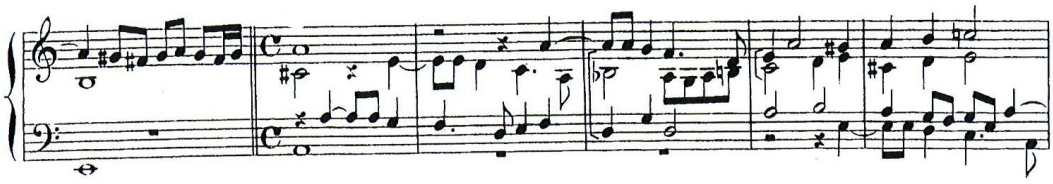
EXAMPLE 7. Second verset of "Magnificat Primi Toni," from Jehan Titelouze, *Le Magnificat* (*The Magnificat,* 1626).[21]

(a) mm.1-5.



[21]Titelouze, 101.

(b) mm. 15-20. **[𝄵]**.



The composer writes the signature 𝄵 at the beginning of this verset (Example 7a). In measure fifteen (Example 7b), the meter shifts from 𝄵 to 𝄡. Again we could consider a strict two-to-one proportional relationship between sections. But applying the same "modified-rational" relationship as explained for Example 6 makes more sense, as the counterpoint in 7b is more convincingly conveyed at a slightly faster tempo.

It appears that similar modifications to the strict two-to-one proportion existed elsewhere in Europe during this period. A German composer and theorist, Michael Praetorius (1571-1621), discussed the two meters (𝄵 and 𝄡) in book three of his *Syntagma musicum*:

> Duple meter [*Æqualis*], or spondaic, is either slower or faster according to the variation of the time signatures. The signature indicating slower [motion] is 𝄡, with which madrigals are marked; the signature for a faster [motion] is 𝄵, with which motets are marked.[22]

For Praetorius, the relationship of the meter 𝄡 to 𝄵 is not two-to-one, or presumably he would have indicated that this was the case. It would seem that Praetorius's interpretation of the two meters is the exact opposite of what we have deduced from our examination of Titelouze's music: for Praetorius, 𝄡 indicates a slower tempo and 𝄵 a faster one. This assumes, of course, that the half note receives the beat in both meters. But this seems

[22]Michael Praetorius, *Syntagma Musicum III* (Wolfenbüttel: privately printed, 1619), 48; quoted in Jeffery Kite-Powell, *Syntagma Musicum III* (New York: Oxford, 2004), 68.

unlikely. For both men, equal note values move more quickly in 𝐂 than in 𝄵. It seems likely, therefore, that Praetorius was thinking of note values rather than the beat, in which case, his understanding of the two meters was the same as that of Titelouze's. In Spain, Correa de Arauxo also mentions the relationship in tempo between these two meters. In the introduction to his *Facultad orgánica* of 1626 he writes, "I decided to attribute the *tiempo partido* [𝄵] to works in eight notes to the measure … and the [*tiempo*] *imperfecto* [𝐂] to those in sixteen notes to the measure (as by law one must) in order to distinguish the difference which there needs to be in tempo [a tempo relation] between the two."[23] Jon Holland's analysis of this statement and the music itself suggests that the half note in 𝄵 should be performed more quickly than 𝐂 without a slash, but not twice as fast.[24] Thus there is good evidence that French, German, and Spanish composers of the early seventeenth century shared similar views about the relationship of tempo between the two meters.

The second French composer included in this discussion, Guillaume-Gabriel Nivers, was a Parisian organist and music theorist. He held the post of organist at St. Sulpice for over fifty years, and also worked as one of the organists at the royal chapel. Nivers published three organ books during the decade 1665 to 1675, which were the first to present the styles and forms of the French Classical School. Pertinent to this discussion is a section from his *First Organ Book*, entitled "On the meter and tempo of pieces." He writes that three meters are normally accepted. The first is 𝐂, which he indicated had four beats per measure. This is a strikingly modern concept, because the same meter used by

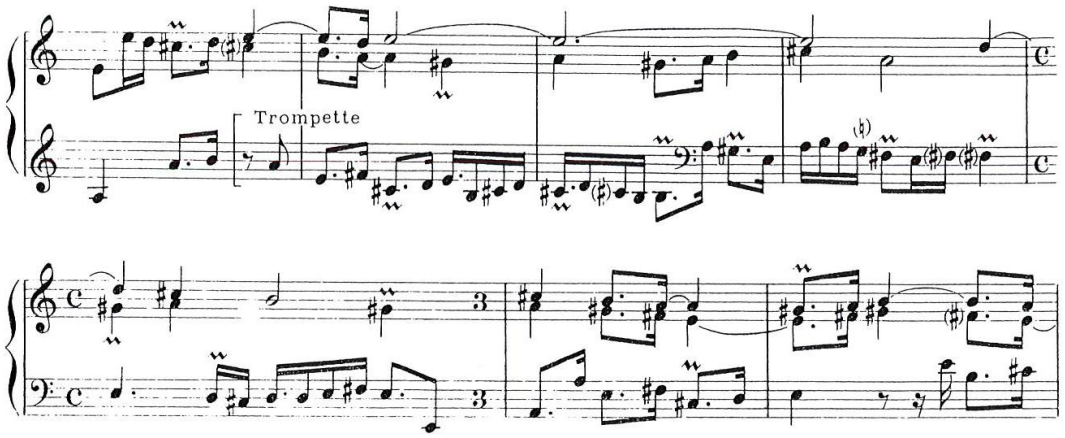
[23]Franscisco Correa de Arauxo, *Facultad Organica* (Seville: privately printed, 1626), fol. 4; quoted in Jon Burnett Holland, "Francisco Correa de Arauxo's 'Facultad Organica': A Translation and Study of its Theoretical and Pedagogical Aspects" (D.M.A. diss., University of Oregon, 1985), 61.

[24]Holland, 66-7.

Titelouze would have most certainly been beaten in 2. The second of these is 𝅵, which he stated could also be notated with the number 2. He indicated that each measure is beaten in two. The third is the triple meter notated with a "3," which has three beats per measure. He then continues by describing the relationship between 𝅵 and 𝅴: two half notes in the first are not normally slower than two quarter notes in the second. In other words, he indicates that there is normally a 2 to 1 proportion between the two duple meters.[25] This is similar to what Titelouze wrote: a theoretical proportion exists, but this might sometimes be modified by the performer.

In Example 8, Nivers continues by discussing three versets with special metrical problems. The first of these is titled "Basse de trompette."

Example 8. "Basse de trompette," from Guillaume-Gabriel Nivers, *Premier Livre d'Orgue* (*First Organ Book*, 1665), mm. 4-10.[26] **[3]**.



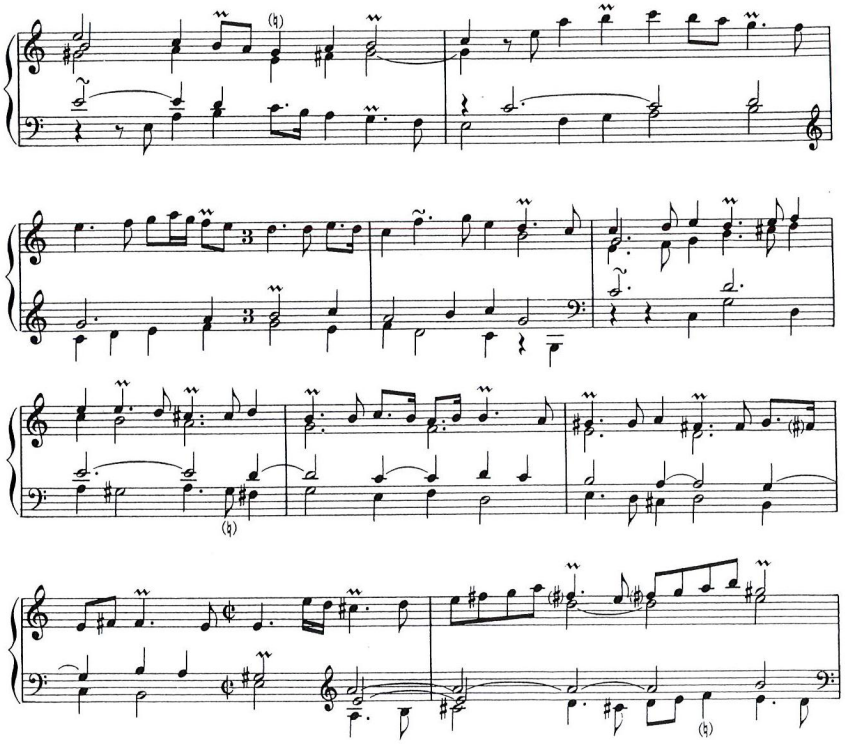
The verset begins with the meter marked 3. This shifts to 𝅴 between measures seven and eight, at the beginning of the second line in the example. The new meter lasts just one

[25]Nivers, *Premier Livre d'Orgue*, ii-iii.
[26]Nivers, *Premier Livre d'Orgue*, 49.

measure before returning to "3." According to Nivers, if eighth notes are present in the score, as is the case here, the quarter equals the quarter.[27] It becomes clear in this example that a performer is no longer dealing with a Renaissance *tactus* of equal duration for duple and triple meters. But the relationship is nevertheless "rational." Since the duple meter lasts only for one measure at a cadential point, one wonders if Nivers was simply attempting to prolong the cadence. Logic alone would dictate that one should play this passage according to Nivers's instructions.

A "Grand jeu"movement is the second composition discussed by Nivers, seen in Example 9.

Example 9. "Grand jeu," from Guillaume-Gabriel Nivers, *First Organ Book* (1665), mm. 5-14.[28] **[¢]**.

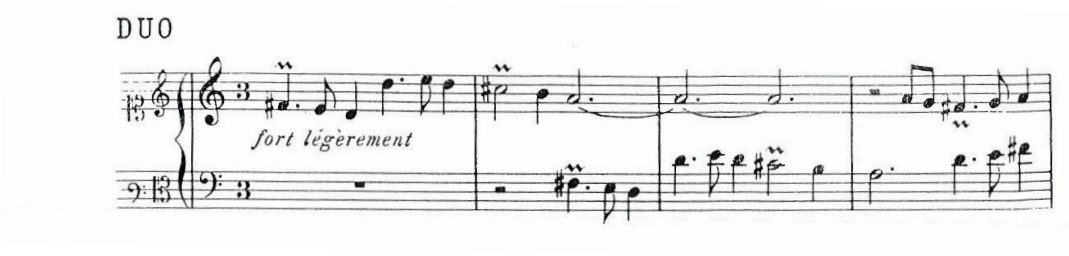


[27]Nivers, *Premier Livre d'Orgue*, ii-iii.
[28]Nivers, *Premier Livre d'Orgue*, 28.

The verset begins with ¢; in measure seven (the first measure of the second line of the example) the meter shifts to "3." Nivers's explanation of this shift is confusing, but a careful analysis reveals that quarter notes in both meters are to be played with the same duration. The half note has the beat in the first section and the quarter note has the beat in the second. Thus the beat in the second section moves at twice the speed as that of the first.[29] Consequently, this triple meter also moves at twice the speed of the triple meter in Nivers's previous example. Like the previous example, the metric relationship is "rational," but involves a different proportion.

A third example from Nivers's *oeuvre* is the following "Duo," the beginning of which is given in Example 10.

Example 10. "Duo," from Guillaume-Gabriel Nivers, *First Organ Book* (1665), mm. 1-4.[30]



The composer notes in his preface to the volume that the quarter notes here are twice as fast (half as long) when compared to Example 9.[31] This is not surprising, since the introductions to many French organ books explain that *duos* are played quickly. Nivers uses three different tempi for the meter "3" in these three examples. At this time in Italy,

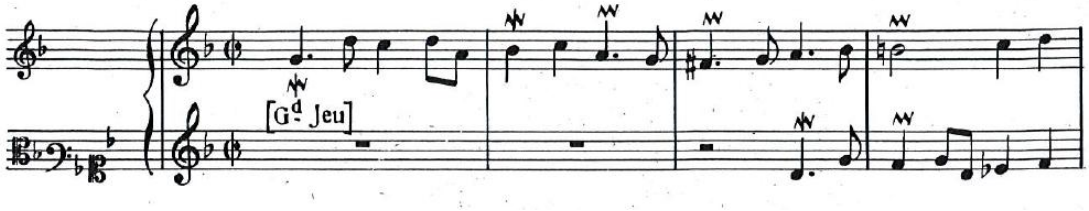
[29]Nivers, *Premier Livre d'Orgue*, ii-iii.
[30]Nivers, *Premier Livre d'Orgue*, 8.
[31]Nivers, *Premier Livre d'Orgue*, ii-iii.

such differences might be indicated with terms such as Adagio, Andante, and Allegro, as will be explained in the next section.[32]

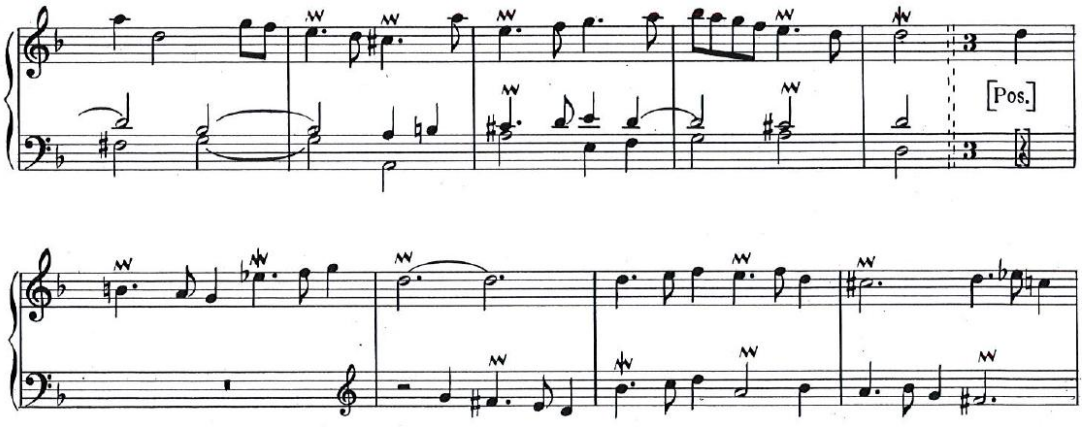
Let us now examine some additional pieces by Nivers, in which similar performance problems arise. The first, entitled "Offerte grave," is included in the *Livre d'orgue* attributed (falsely) to J. N. Geoffroy but was actually composed by Nivers (Example 11).

Example 11. "Offerte grave," by Guillaume-Gabriel Nivers, in *Livre d'orgue attribué à J. N. Geoffroy* (*Organ Book Attributed to J.N.Geoffroy*).[33]

(a) mm. 1-4.



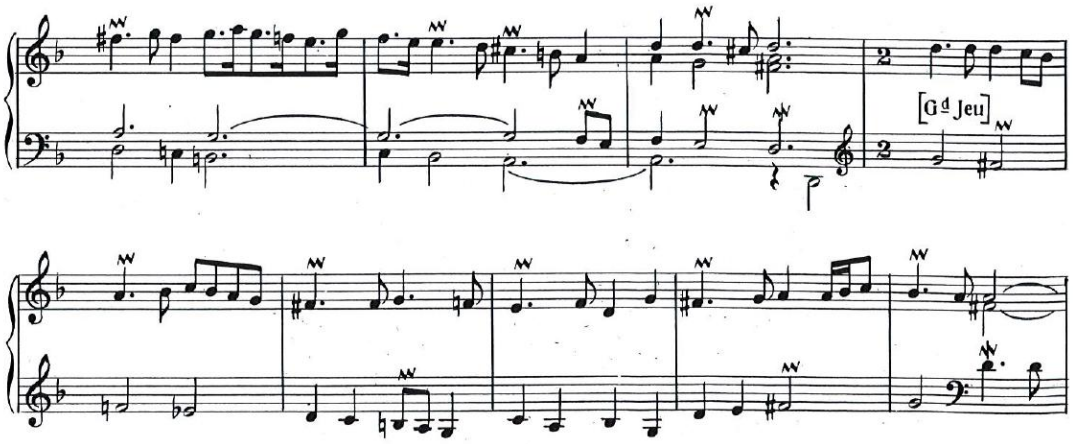
(b) mm. 75-83. **[¢]**.



[32]Hans Davidsson comes to a similar conclusion in his research: Hans Davidsson, *Matthias Weckmann: The Interpretation of His Organ Music* (Stockholm: Gehrmans Musikförlag, 1991), 67.

[33]*Livre d'orgue attribué à J. N. Geoffroy*, ed. Jean Bonfils (Paris: Heugel, 1974), 68-71.

(c) mm. 102-110. **[3]**.



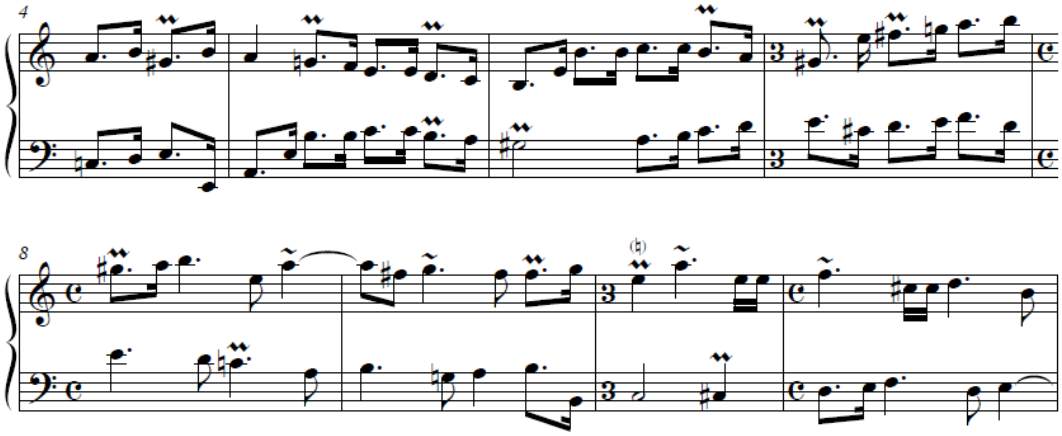
Nivers assigns the meter ¢ to the beginning of the work. In measure seventy-nine (Example 11b), the meter shifts to "3;" in measure 105 (Example 11c) it shifts to "2," the other sign Nivers used to indicate a binary meter. The label *grave* in the title implies a serious character and slow tempo. Given the structure and function of this work as an offertory for the Mass, however, we can assume the piece resembles a French overture, in which a stately opening is normally followed by a quicker section.[34] One option would be for the quarter in both binary meters to equal a quarter in the triple meter. But if instead the performer maintains the beat between the first two sections, this yields a more lively triple meter, in keeping with the genre. In this solution, the half note of the opening duple section equals a dotted half note of the triple. A faster tempo occurs naturally if the speed of the quarter note is maintained when progressing from the second to the third section.

Let us now consider three works from Nivers's *Second Organ Book*, published in 1667. These versets exhibit similar problems in shifts of meter, and reinforce the belief

[34]Joseph Dyer, "Offertory," *Grove Music Online*, ed. Deane Root, accessed April 25, 2016, http://oxfordmusiconline.com.

that the directives Nivers left in the preface to his *First Organ Book* are applicable to his other works. This first of these is titled "Duo" (Example 12).

Example 12. "Duo," from Guillaume-Gabriel Nivers, *2 Livre d'Orgue* (*Second Organ Book*, 1667), mm. 4-12[35]. **[𝐂]**.

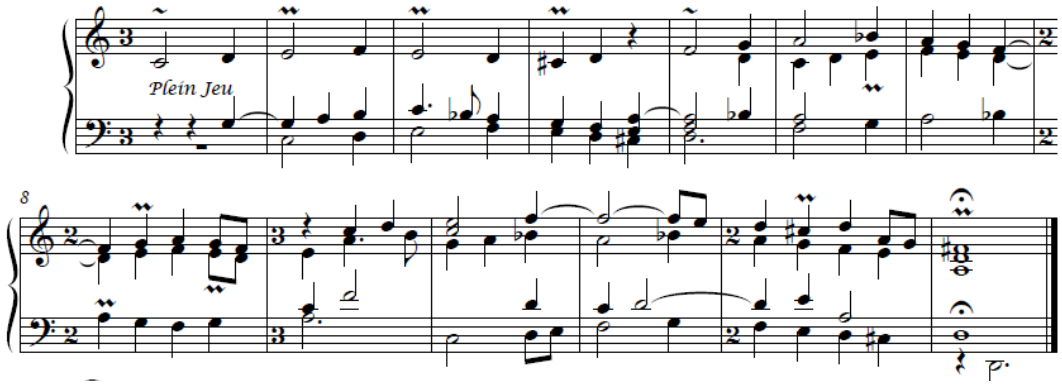


The verset begins in 𝐂. In measure seven, at the end of the first line of the excerpt, Nivers assigns the meter "3" for the span of only one measure. In measure eight the meter returns to 𝐂. In measure ten, the composer again assigns the meter "3" for only one measure, which returns to 𝐂 in meaure eleven. The most logical solution would seem to be maintaining a note equivalence between these shifts from duple to triple, per Nivers's instructions (Example 8). That is, the quarter note in the in the duple measures equals the quarter in the triple measures. This is yet another example of a "modified-rational" reltionship.

The second of these selected works from Nivers's second book (Example 13) is the first verset of the Pentecost hymn "Veni Sancte Spiritus."

[35]Guillaume-Gabriel Nivers, *2 Livre d'Orgue*, ed. Pierre Gouin (Paris: Les Éditions Outremontaises, 2010), 12.

Example 13. First verset of "Veni Sancte Spiritus," from Guillaume-Gabriel Nivers, *Second Organ Book* (1667), mm. 1-13.[36]

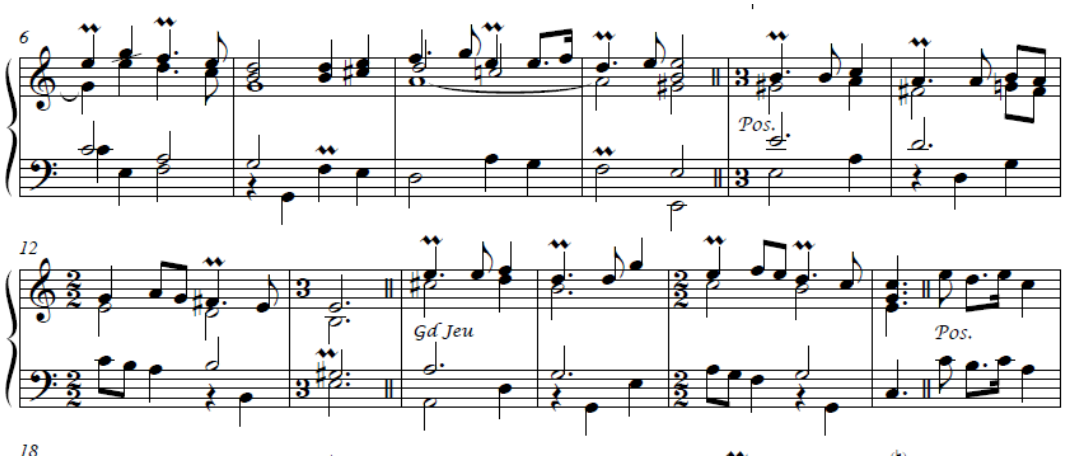


Nivers marks the meter "3" at the beginning of the verset. In measure eight, at the beginning of the second line of the example, the meter shifts to "2." But this lasts only for the span of one measure before the meter returns to "3." In measure twelve, the meter shifts to "2," which remains for the duration of the verset. The solution I would propose is simple: the duration of a triple measure equals half of the duration of a duple. To simplify, the dotted half note in the meter marked "3" equals the half note in the meter marked "2." Again a "rational" relationship exists between the two meters, but not like those in use during the Renaissance. I have determined this solution by careful experimentation at the organ. Perhaps the phrase structure of the hymn also dictated Nivers's placement of these shifts: the first occurs in the middle of the hymn and the second at the conclusion.

We now examine the last of these selected works (Example 14), which Nivers titled "À 2 Chœurs."

[36]Guillaume-Gabriel Nivers, *2 Livre d'Orgue*, 46.

Example 14. "À 2 Chœurs," from Guillaume-Gabriel Nivers, *Second Organ Book* (1667), mm. 6-17.[37] **[2/2]**.



The movement begins in the meter marked 2/2. In measure ten, Nivers marks the meter "3" for the span of two measures. The meter returns to 2/2 in measure ten, which lasts for only one measure. Then Nivers again marks "3," this time for the span of three measures, before the final shift back to 2/2 in measure sixteen. Again, as in Example 9, we can apply the composer's instructions to these shifts. The quarter note in both duple and triple meters receives the same duration. Because the half note receives the beat in the duple sections and the quarter note receives the beat in the triple sections, we do not encounter a 2:1 ratio: the quarter note remains at constant duration or speed. Here again we encounter a "modified-rational" relationship.

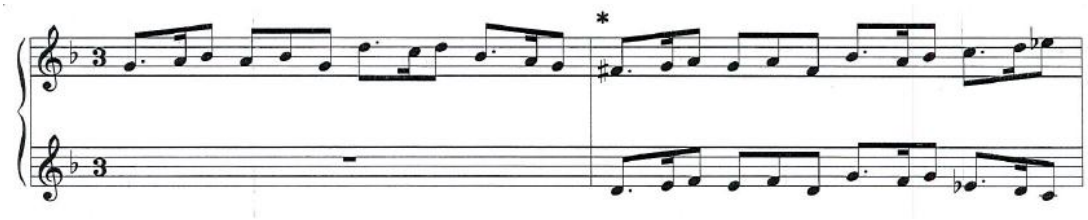
We now examine a work composed by Louis Couperin, the third Frenchman included in this discussion. During his career, he was known as a harpsichordist and at court as a viol player. He also held the post of organist at St. Gervais in Paris. His organ

[37]Guillaume-Gabriel Nivers, *2 Livre d'Orgue*, 97.

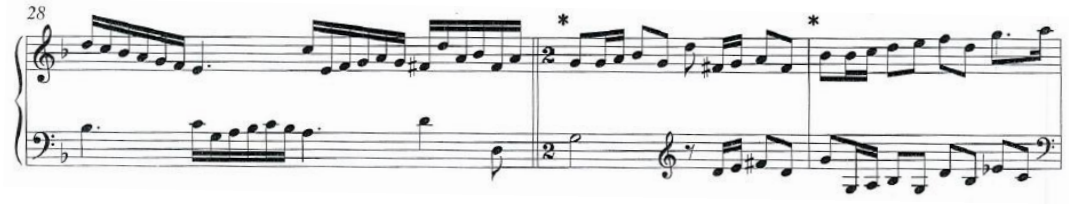
works were composed during the 1650s, between the period of Titelouze and Nivers. Example 15 contains two excerpts from a "Duo" by Couperin.

EXAMPLE 15. "Duo," from Louis Couperin, *Pièces d'orgue* (*Organ Pieces*).[38]

(a) mm. 1-2.



(b) mm. 28-30. **[3]**.



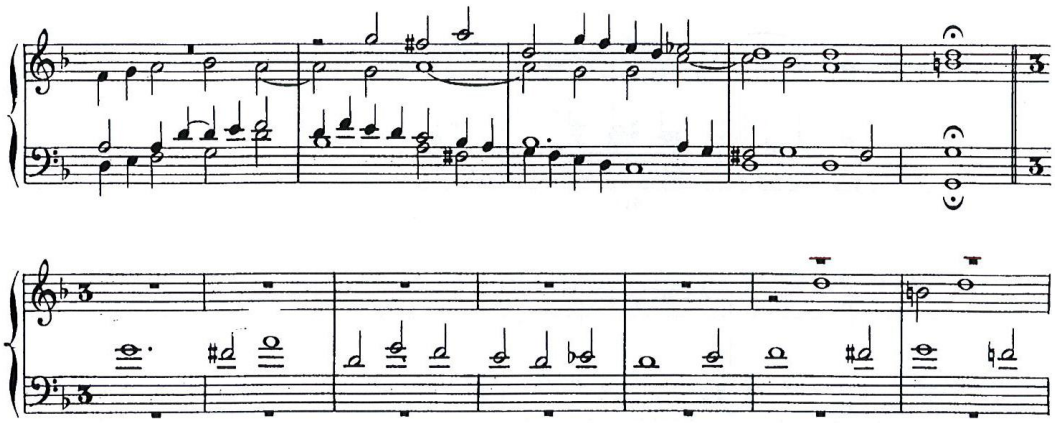
Couperin uses the meter "3" at the beginning of this verset (Example 15a), which shifts to "2" in measure twenty-nine (Example 15b). After careful experimentation at the organ, I propose that the most convincing solution in this case is to apply the same tempo for notes of the same value in both meters (e.g. a sixteenth note in the first equals a sixteenth in the second). If the dotted quarter of the first section equals the half of the second, the new tempo is too fast. And if the dotted quarter equals the quarter, the opposite occurs: the new tempo is too slow, with all intensity and drive being lost. Thus we see that the "rational," yet more modern interpretation is best for this work.

[38]Louis Couperin, *Pièces d'orgue*, ed. Nicolas Gorenstein (Paris: Editions du Triton, 1993), 43-4.

The fourth French composer and organist included in this study is François Roberday, whose only extant work is his volume *Fugues et caprices* (1660), which contains twelve pieces. In the preface to the work, Roberday mentions other composers whose themes he uses for the fugues. These include Louis Couperin, Jean-Henri D'Anglebert, Johann Froberger, and Francesco Cavalli.[39] The works contained in this book show Roberday's familiarity with the Italian style and a sense of rhythmic freedom, as well as a solid contrapuntal technique reminiscent of that of Titelouze.

Let us now examine some of the works found in Roberday's volume, beginning with the "First Fugue" (Example 16).

Example 16. "First Fugue," from François Roberday, *Fugues et Caprices* (*Fugues and Caprices*, 1660), mm. 29-40.[40] **[𝐂]**.



Roberday marks the opening section of this fugue with the meter 𝐂. In measure thirty-four, at the beginning of the second line of the example, the meter shifts to "3." This

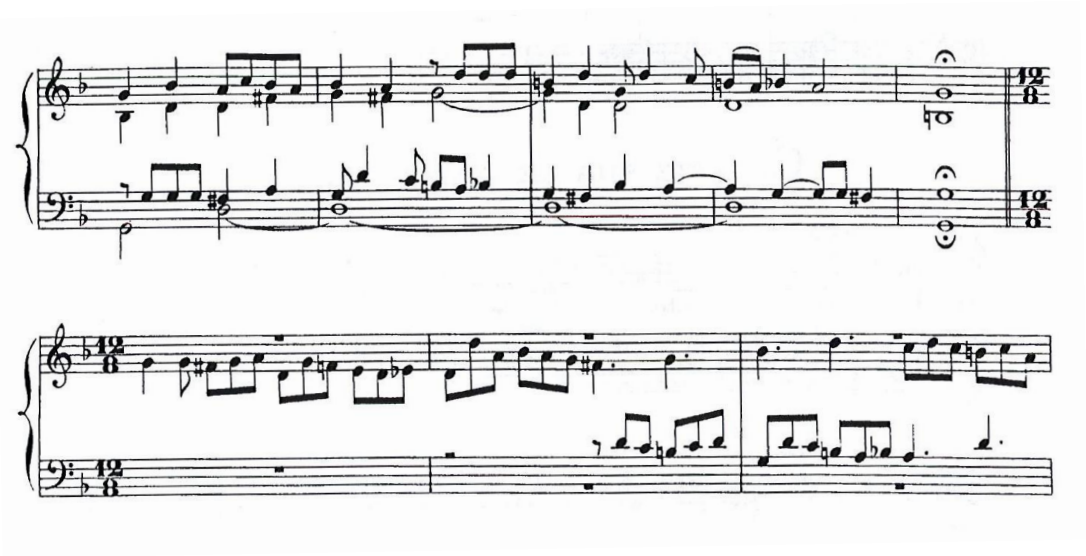
[39]François Roberday, *Fugues et Caprices* (Paris: A. Durand & Fils, 1901), ii. Translation by Robert Bates.

[40]Roberday, *Fugues et Caprices*, 4.

meter remains for the duration of the fugue. The "white note" style would suggest a "rational" relationship between sections, like that of Renaissance practice. Therefore, a whole note in the meter marked 𝐂 should equal a dotted whole note in the meter marked "3." If one uses this proportion, the clarity of the counterpoint is maintained in both sections.

Example 17 is a movement entitled "Caprice," which immediately follows this fugue; the two share the same subject.

Example 17. "Caprice on the Same Subject [as the First Fugue]," from François Roberday, *Fugues and Caprices* (1660), mm. 21-28.[41] **[𝐂]**.



In the opening section, the composer marks the meter 𝐂. He then assigns the meter 12/8 at the second line of the example, which is maintained for the duration of the movement. The section marked 12/8 is clearly a jig fugue. The spritely character of this dance can be conveyed by using a "rational" relationship: the half note in 𝐂 equals the dotted half note

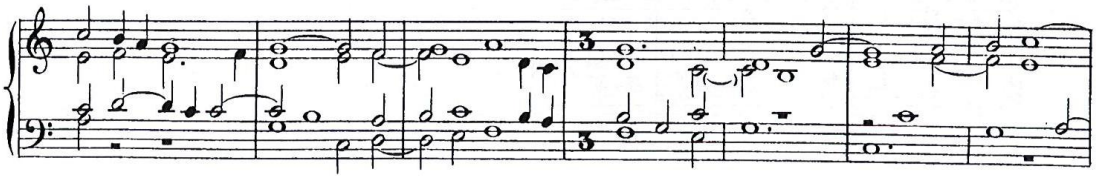
[41]Roberday, *Fugues and Caprices*, 6.

in 12/8. However, Roberday writes the following in the preface to his book: "the *caprices* must be played (in terms of the meter) with discernment and very slowly, although they are notated with eighths and sixteenths…"[42] This would seem to contradict what this author suggests for the section marked 12/8. A slower tempo would seem a better solution for the other four caprices found in the same book that actually do contain sixteenth notes.

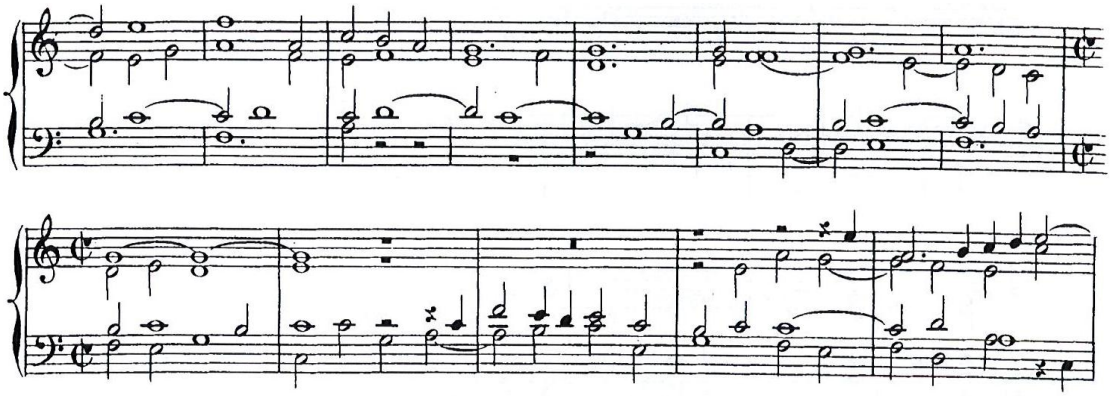
Example 18 is another fugue from Roberday's collection.

Example 18. "Fourth Fugue," from François Roberday, *Fugues and Caprices* (1660).[43]

(a) mm. 19-25. **[¢]**.

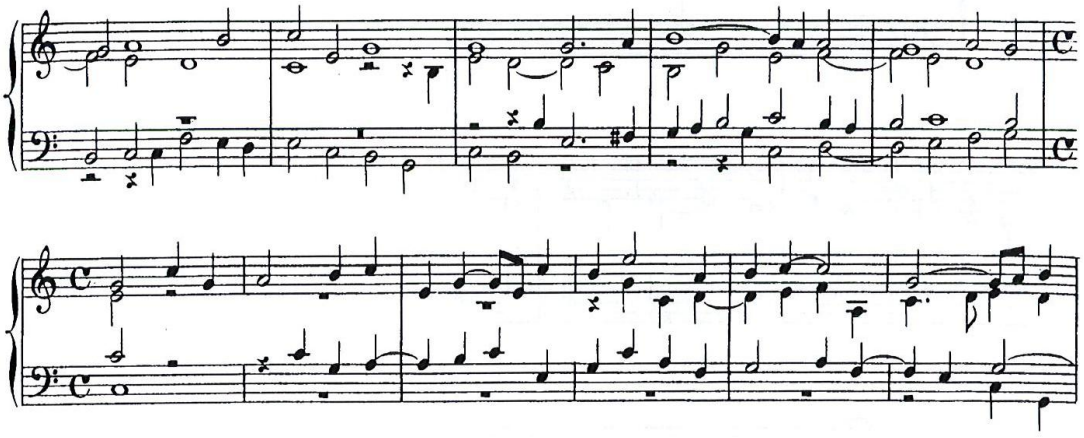


(b) mm. 55-67. **[3]**.



[42]Roberday, ii. Translation by Robert Bates.
[43]Roberday, *Fugues and Caprices*, 15-17.

(c) mm. 83-93. **[¢]**.



In Example 18a, there is a shift from the opening meter ¢ to "3" in measure twenty-two. Again a proportional relationship can be applied to this shift: the whole note in ¢ is equal to a dotted whole note in the meter marked "3." In measure sixty-three, at the beginning of the second line of Example 18b, the meter returns to ¢. Obviously, this shift reverses the proportion: the duration of the dotted whole note now becomes the duration of a whole note. The next shift occurs at the beginning of the second line of Example 18c. Here Roberday marks the final section with the meter **C**. We could consider a strict two-to-one proportional relationship between sections. But what makes more sense is to follow the directions Titelouze gave, which was applied to Examples 6 and 7: the relationships between sections need not be exact, as the counterpoint in the section Roberday marks **C** is conveyed more convincingly at a slightly faster tempo. This in turn allows for a slight alteration of the proportion in performance, thus yielding a "modified-rational" solution.

To finish this section on meter in France, it is possible to draw the following conclusions. Three "rational" relationships existed. In the first, the old *tactus* of the

Renaissance is maintained when shifting from one meter to another, but the beat is subdivided differently in the two meters. For example, the half-note beat in 𝅗𝅥 may equal the dotted half-note beat in "3," the quarter notes in the two meters thus maintain a *sesquialtera* relationship. In the second—a more modern practice—the beat also stays the same, but the subdivisions do not change. For example, a quarter-note beat in "3" may equal a quarter-note beat in 𝐂. In this case, the length of the measures changes, but not the beat itself. In the third, the beat changes, while the subdivision of the beat is maintained. For example, a quarter note in "3" may equal a quarter note in "2." Here the dotted half note receives the beat in "3" while the half note receives the beat in "2," resulting in a quickening of the tempo at the meter change. Finally, we have seen good evidence for "rational" relationships being modified in practice. For example, when progressing from 𝐂 to 𝅗𝅥, the exact proportion of two to one might be altered, with the half-note beat moving slower in the second meter. This solution is applicable when a slight modification in tempo would help convey the counterpoint more convincingly in one section more than the other. This can be determined by experimentation at the keyboard.

Meter and Tempo in Italy

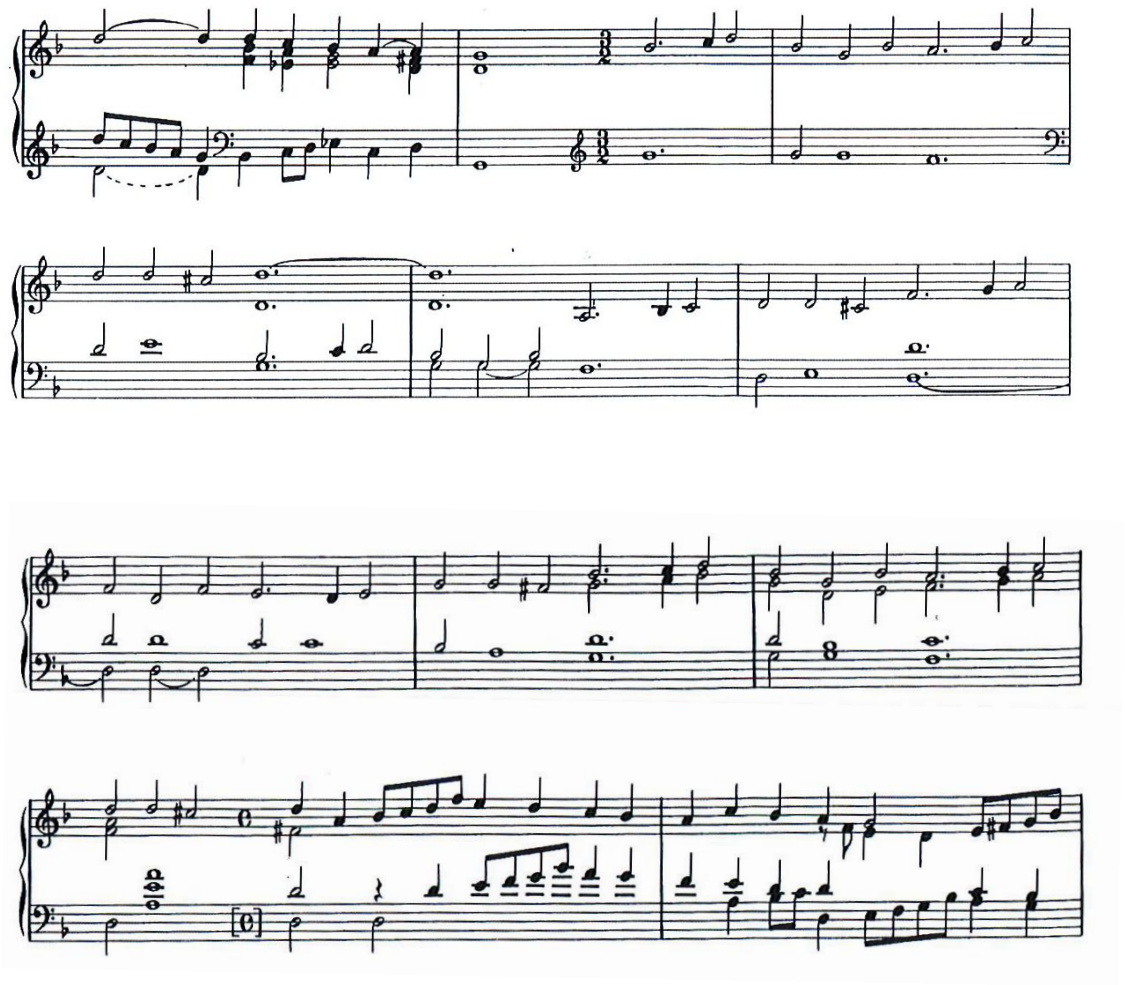
In Italy, the writings and compositions of four musicians will be examined: Diruta, Gabrieli, Banchieri, and Frescobaldi. Diruta offers information on the beat, tempo, and *sesquialtera* proportion. Banchieri gives tempo marks for one composition, which are a valuable source of information. Diruta also includes in his treatise a composition, written by Giovanni Gabrieli, that is relevant to this discussion. Finally, we shall consider three pieces by Frescobaldi from his *Second Book of Toccatas* of 1627 and his advice concerning tempi.

The first Italian in our discussion is Girolamo Diruta. He was a composer and organist, and held the post of organist at Chioggia Cathedral. Additionally, he was a music theorist and familiar with the works of Zarlino and Merulo. Diruta was a Franciscan. In the first part of his treatise *Il Transilvano*, published in 1593, Diruta writes the following: "The quickness and slowness of the beat is at the discretion of the singer and director."[44] Diruta's explanation of how to beat time is in keeping with similar descriptions by his contemporaries. But his indication that the speed of the beat is at the discretion of the performer is not yet universally accepted. What he suggests is a "non-rational" approach to metrical relationships.

In the second part of *Il Transilvano*, published in 1609, Diruta included a work titled "Canzona la spiritata" by Giovanni Gabrieli.

[44]Girolamo Diruta, *Il Transilvano* (Venice: printed privately, 1593), 25; quoted in Murray C. Bradshaw and Edward J. Soehnlen, "Girolamo Diruta's *The Transylvanian*," vol. 1 (Henryville: Institute of Mediæval Music, Ltd., 1984), 159.

Example 19. "Canzona la spiritata," from Giovanni Gabrieli, *Canzoni per sonare con ogni sorte di strumenti* (1608), mm. 13-23.[45] **[𝄵]**.



The piece is divided into three distinct sections. The meter of the first is marked 𝄵. Gabrieli shifts from 𝄵 to 3/2 at the beginning of the second section; in his text, he calls this shift *sesquialtera*. The term suggests that a whole note in the first section equals a dotted whole note in the second. But if we follow this proportion, the triple-meter section seems too slow. It is important to keep in mind what Diruta wrote: "The quickness and slowness of the beat is at the discretion of the singer and director." A better solution is to

[45]Ibid., vol. 2, 25-6.

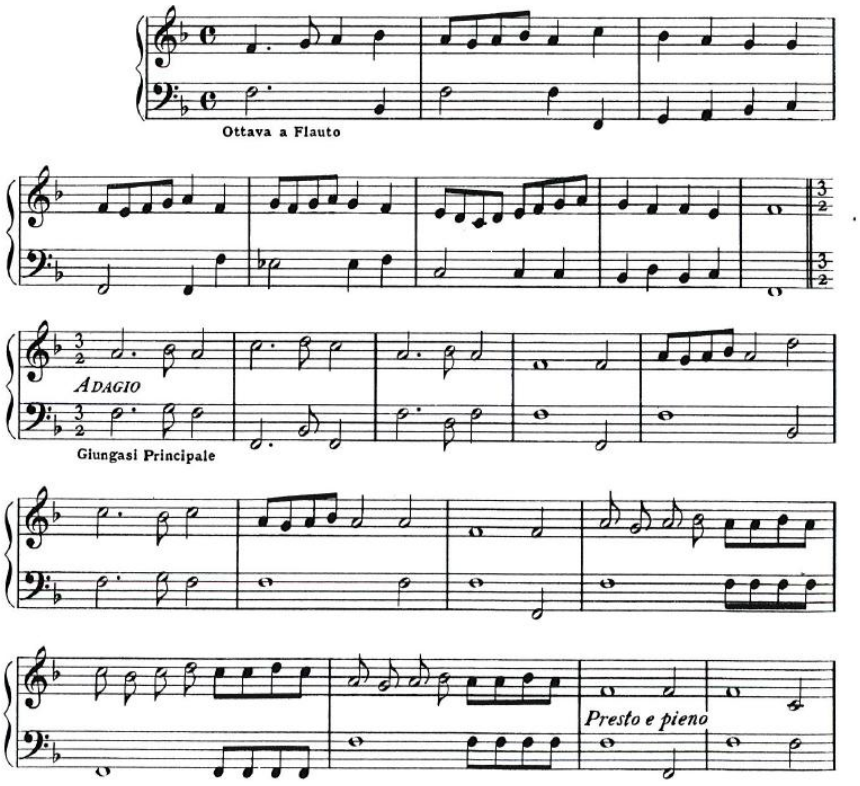
play the triple meter somewhat quicker, without concerning oneself at all with proportions, as a slower tempo would not yield a lively dance-like character implicit in this section. In the third section of the same example, the meter returns to 𝐂. Because the figuration becomes more complex in this section, there is no reason to think that one needs to return to the exact tempo of the first section, as we will soon see in Frescobaldi's text.[46] If the first tempo were applied to this section, the more complex figuration would be too fast.

The second Italian composer in this discussion is the organist, theorist, and poet Adriano Banchieri. He was a Benedictine monk who lived his entire life in Bologna. His treatises from 1609 and 1614 discuss meter, but contain nothing of significance for this topic. However, a piece entitled "La Battaglia" from his 1605 treatise, *L'Organo suonarino*, contains tempo indications at most of the meter changes, and sometimes even within a single meter. Two excerpts from this piece are given below (Examples 20a and 20b).

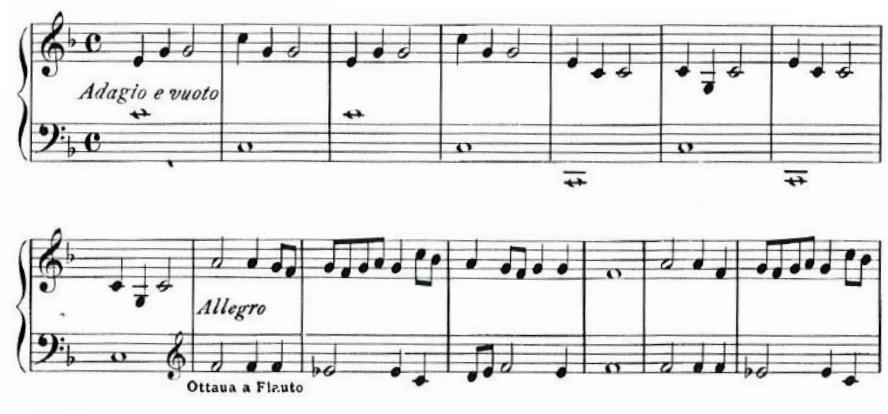
[46]Girolamo Frescobaldi, *Il secondo libro di toccata* (Rome: privately printed, 1627), [iii]; quoted in Calvert Johnson, *Girolamo Frescobaldi's Fiori musicali* (Colfax: Wayne Leupold Editions, 2008), 32.

Example 20. "La battaglia, per organo," from Adriano Banchieri, *L'Organo suonarino* (1605).[47]

(a) mm.1-23.



(b) mm. 30-43.



[47]Adriano Banchieri, *La Battaglia, per organo* (Milan: Ricordi, 1908), 2-4.

Example 20a shows the opening section, marked with the signature 𝐂 but without any tempo indication. The first shift occurs in the third line in measure nine, with the *sesquialtera* marking of 3/2. One would normally assume that the whole note in the first section equals the dotted whole note in the second. But Banchieri marks the second section *Adagio*, so a strictly proportional interpretation is unlikely. In measure twenty-two, midway through this section, Banchieri inserts the marking *Presto e pieno*. *Pieno* means full and may refer to a registration or the filling in of chords. *Presto* obviously refers to the tempo. Although the meter has not changed at this point in the score, the tempo has. Example 20b shows the next shift, found in measure thirty, which takes us back to 𝐂, this time indicated *Adagio e vuoto*. This tempo marking again indicates that there is no need for a strictly proportional relationship between sections. The indication *Adagio* also suggests that this is not as fast as the opening section, marked with the same meter signature. This is the final metrical shift in this piece. However, Banchieri includes more tempo markings, all performed in the meter 𝐂: *Allegro*, *Adagio*, *Presto*, *Veloce*, and finally *Allegro*. These many tempo markings are a sure indication of the "non-rational" approach.

The third Italian composer in this discussion is the celebrated keyboard virtuoso Frescobaldi. During his career he held various church posts, including St. Peter's Basilica in Rome; in addition he was also in the employ of two cardinals. His compositional output was largely instrumental, and he published eight collections of works in his lifetime, which stretched the bounds of the established genres.

In the preface to his *Second Book of Toccatas*, Frescobaldi mentions a manner of playing that is not bound to strictly proportional relationships among sections:

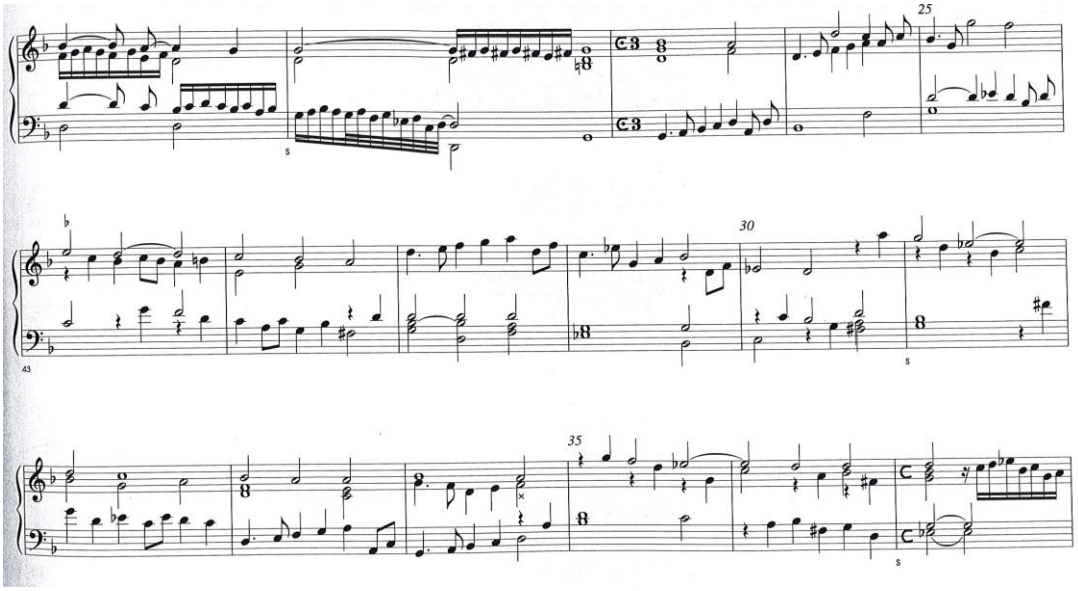
> First, this style of playing must not be subject to a strict beat, [but rather be] like what we see used in modern Madrigals however difficult, which are easily performed with the beat now slow and then quickly, and [even] suspended in the air according to the emotions or the meaning of the words.[48]

Here again it is evident that textual considerations such as words and emotions are determining factors in deciding a tempo. As mentioned earlier in this study, Mersenne made similar comments about vocal music. However, it is unlikely that Frescobaldi totally dismissed the idea of a strict proportional relationship, using this more "modern" concept as a default as we shall see.

Many shifts of meter occur within individual pieces in Frescobaldi's *Second Book of Toccatas*, one of which is seen in Example 21.

[48]Girolamo Frescobaldi, *Il secondo libro di toccate* (Rome: privately printed, 1627), [iii], quoted in Calvert Johnson, *Girolamo Frescobaldi's Fiori musicali* (Colfax: Wayne Leupold Editions, 2008), 32.

Example 21. "Canzona prima," from Girolamo Frescobaldi, *Secondo libro di toccata* (*Second Book of Toccatas*, 1627), mm. 21-37.[49] **[𝐂]**.



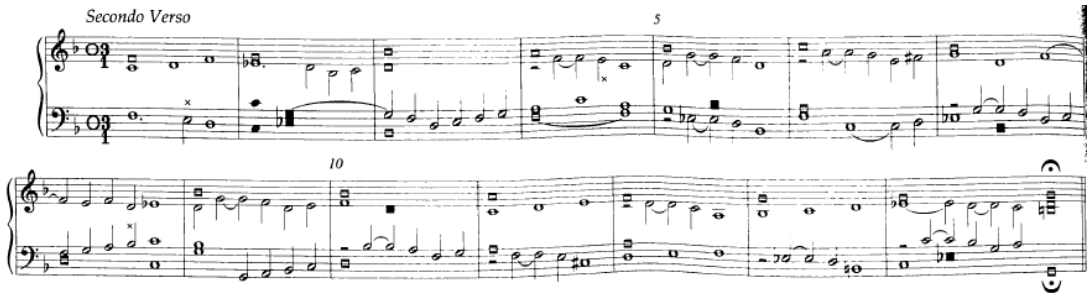
This canzona contains three sections. The first and third bear the meter 𝐂, while the second is indicated by 𝐂 with a dot in the middle followed by "3." If one were to interpret the first shift using a strict proportion, two half notes in first section would equal three in the second. However, because of the rapid figuration in both of the sections written in 𝐂, a fairly slow beat is necessary. If a strict proportion between the first two sections is then observed, the triple section will not be lively and the dance-like character will be lost. One solution is simply to play the two sections in the meter 𝐂 with a fairly slow beat and the triple section with a faster one, without regard to maintaining strict proportion. In other words, "non-rationally," as was common practice in performance of "modern madrigals."

[49]Girolamo Frescobaldi, *Organ and Keyboard Works*, vol. 3, ed. Christopher Stembridge and Kenneth Gilbert (Kassel: Bärenreiter, 2009), 49.

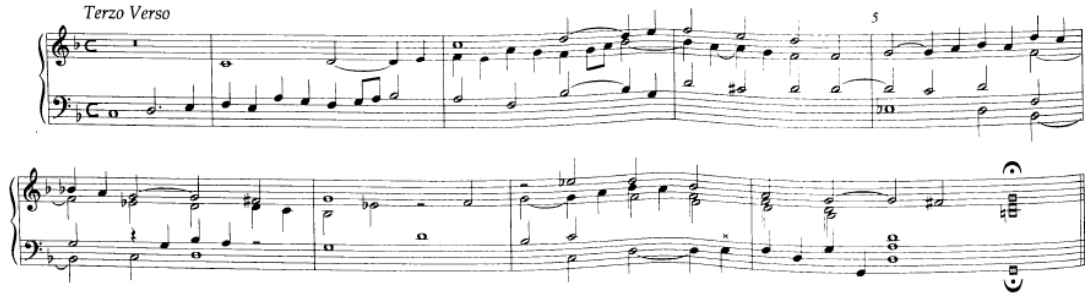
Examples 22a and 22b contain the second and third versets from Frescobaldi's "Magnificat in the Second Tone" from the *Second Book of Toccatas*.

Example 22. "Magnificat in the Second Tone," from Girolamo Frescobaldi, *Second Book of Toccatas* (1627).[50]

(a) Second verset.



(b) Third verset.



These two versets could be played at the same tempo. But Frescobaldi approved of varying the tempi of versets, as he indicated in the introduction to his *Fiori musicali*.[51] In addition, chant would have been sung between these pieces, mitigating the desire for an exact relationship. After experimentation at the organ, it is my preference to play the third

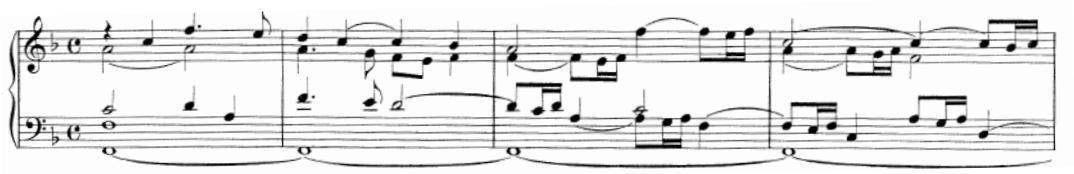
[50]Ibid., 74.
[51]Johnson, 32.

verset slower than the second as the counterpoint in the first lends itself to a quicker tempo.

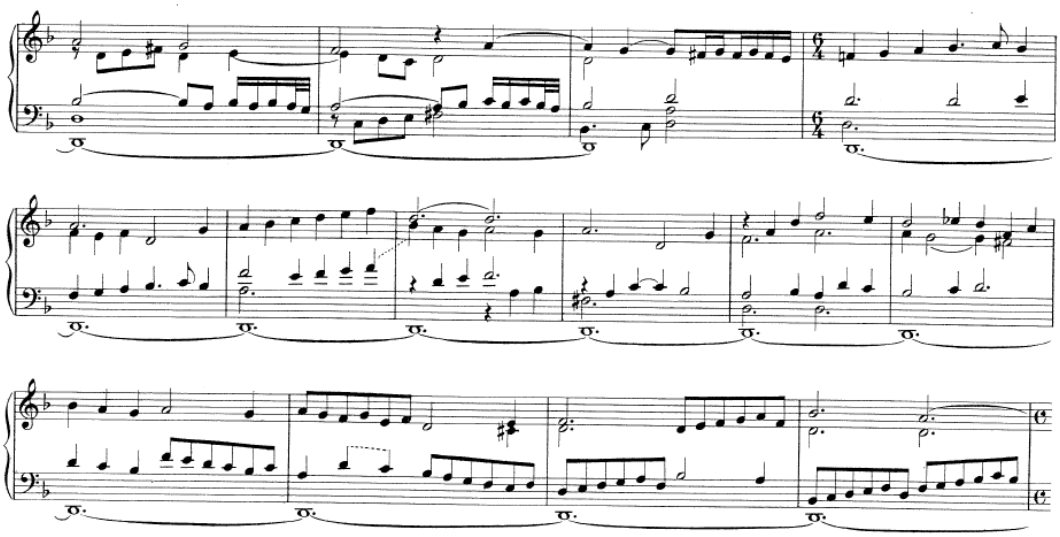
Frescobaldi's "Toccata sesta" (Example 23) is also drawn from the *Second Book of Toccatas*.

EXAMPLE 23. "Toccata sesta," from Girolamo Frescobaldi, *Second Book of Toccatas* (1627).[52]

(a) mm.1-4



(b) mm. 36-50.



[52]Girolamo Frescobaldi, *Organ and Keyboard Works*, vol. 4, ed. Pierre Pidoux (Kassel: Bärenreiter, 1956), 23 and 25.

The work begins with the meter 𝐂 (Example 23a). In measure thirty-nine it shifts to 6/4 and in measure fifty it returns to 𝐂 (Example 23b). Though contrary to what Frescobaldi writes in the prefatory material of the collection (discussed earlier), a strictly proportional relationship between sections seems most logical in this work: the half note in 𝐂 should equal the dotted half in 6/4. By maintaining this relationship, the figurations in the sections marked 𝐂 seem more florid and virtuosic, creating a more dramatic opening and conclusion. Although many of his other compositions are strikingly modern for his time, this toccata displays his understanding of Renaissance compositional practice. The proportional relationship suggested here is in keeping with the old practices.

During this period in Italy, the choice of tempo in sectional music became more arbitrary. Frescobaldi asserts, "there is no doubt that perfection in playing primarily consists in understanding tempi."[53] Perhaps this emphasis on tempo was due to the gradual shift to a more modern approach to meter at the time, and the resulting confusion for performers. Although the older proportional relationships still existed as possible interpretive solutions for many pieces, evidence suggests that a less "rational" approach was gradually winning the day. Primary sources discuss the freedom with which performers may interpret sectional music. Tempo markings begin to appear, and sometimes several of these occur in a single section written in one meter. We have seen that the older style of polyphonic composition usually warrants a "rational" or "modified-rational" approach. However, the most logical way to determine tempi for organ music from this period is by careful experimentation at the organ.

[53]Johnson, 31.

Conclusion

This study has examined organ music during a period when notation (of both pitch and rhythm) was in transition, specifically focusing on tempo and shifts between duple and triple meters. Three basic solutions for interpreting shifts in meter have been presented. The first is strictly "rational" and involves exact proportions, either based on a steady *tactus*, as had been the case in the Renaissance, or on faster note values. The second uses theoretically exact proportions, but involves slight modifications of tempi in actual performance, especially when moving from 𝐂 to 𝄵. The last is "non-rational" and is based on tempi chosen by the performer or indicated with words by the composer, such as Adagio, Allegro, and Presto. The Italians tended to favor the "non-rational" approach, while the French tended to prefer the "rational" or "modified-rational" approaches.

This study has focused on music and theoretical writings in France and Italy. Future research on the topic of meter in early organ music could also investigate compositions and primary written texts from other European countries. Especially intriguing are the metrical shifts found in the music of several German composers, including Michael Praetorius (whose commentary was touched on earlier in this study), Franz Tunder, Samuel Scheidt, and Jacob Praetorius. The writings of Correa de Arauxo were also mentioned in this study; a new examination of his music as well as that of other Spanish composers is now warranted, as is a fresh look at *El melopeo y maestro* (1613) by Pietro Cerone. In England, John Bull, Peter Phillips, and William Byrd wrote compositions that also contain shifts in meter, and Thomas Morely's *A Plaine and Easy*

Introduction to Practical Music (1597)[54] contains important information on the topic. Such research could bring to light additional problems and new solutions. Undoubtedly, some findings will further confirm what has been presented here. But there can be little doubt that additional and unexpected metrical relationships may have existed elsewhere in European keyboard and organ music. Finally, an examination of the relationships between vocal and instrumental practices, and even between chant-based organ music and performance practice of Gregorian chant, could yield valuable new insights.

It is my hope that this study will help organists as they grapple with the problems of meter and tempo in early French and Italian organ music (1600-1670). As with all successful performances, performers will need to combine their theoretical knowledge with good taste and the willingness to experiment.

[54]Though the date of publication does not fall within the span of this study, its close proximity makes it relevant nonetheless.

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